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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,667	06/21/2001	Masaya Tamura	P/1071-1357	8657

7590 05/16/2005
KEATING & BENNETT, LLP
10400 Eaton Place
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Fairfax, VA 22030

EXAMINER

KWOK, HELEN C

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Alk

Office Action Summary	Application No. 09/886,667	Applicant(s) TAMURA, MASAYA	
	Examiner Helen C. Kwok	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 10-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/21/01; 2/6/03; 8/4/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (Claims 1-9 in the reply filed on May 3, 2005 is acknowledged.

2. Claims 10-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected election, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 3, 2005.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

4. Claims 1-9 are objected to because of the following informalities. Appropriate correction is required.

In claim 1, line 4, the phrase "a substrate" should be changed to – the substrate -
-. In line 13, the word – the – should be inserted before the word "displacement".

In claim 9, it appears that the claim fails to further limit the subject matter of a previous claim because if claims 8 is chosen to depend on claim 6, than the limitation of claim 9 is already claimed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,996,09 (Funk et al.).

With regards to claims 1-2 and 7-9, Funk et al. discloses an acceleration sensing device comprising, as illustrated in Figures 1-3, a substrate (i.e. SOI substrate) 4; a displacement portion forming member disposed on a substrate including a vibrator for an angular velocity sensor 2 to be vibrated and displaced by a Coriolis force caused by an angular velocity; a movable member for an acceleration sensor 3 to be movably displaced by application of an acceleration such that the vibrator and the movable member being spaced from each other, a lid 47 to hermetically seal the sensors is disposed on an upper side of the displacement portion forming member to cover and be spaced from the vibrator of the angular velocity sensor and the movable member of the acceleration sensor wherein the substrate, the displacement portion forming member and the lid defines a space for accommodating and sealing the vibrator of the angular velocity sensor and the movable member of the acceleration sensor, in such a manner that the vibrator and the movable member can be vibrated and the space being sectioned into an angular velocity sensor space for accommodating and sealing the

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vibrator of the angular velocity sensor and an acceleration sensor space for accommodating and sealing the movable member of the acceleration sensor which is not communicated with the angular velocity sensor space such that the angular velocity sensor space is sealed in a first environment and wherein the acceleration sensor space is sealed in a second different environment. Furthermore, the angular velocity sensor and the acceleration sensor have constant potential sites so that the sensors are maintained at set constant potentials, respectively wherein the constant potential site of the angular velocity sensor being electrically connected to the constant potential site of the acceleration sensor to an external circuit. (See, column 4, line 6 to column 6, line 64).

7. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-239064 (Saito).

With regards to claims 1-2 and 8-9, Saito discloses a composite sensor for angular velocity and acceleration comprising as illustrated in Figures 2-5, a substrate 3,4,16; a displacement portion forming member disposed on a substrate including a vibrator for an angular velocity sensor 1 to be vibrated and displaced by a Coriolis force caused by an angular velocity; a movable member for an acceleration sensor 2 to be movably displaced by application of an acceleration such that the vibrator and the movable member being spaced from each other, a lid 9,10,11 to hermetically seal the sensors is disposed on an upper side of the displacement portion forming member to cover and be spaced from the vibrator of the angular velocity sensor and the movable

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member of the acceleration sensor wherein the substrate, the displacement portion forming member and the lid defines a space for accommodating and sealing the vibrator of the angular velocity sensor and the movable member of the acceleration sensor, in such a manner that the vibrator and the movable member can be vibrated and the space being sectioned into an angular velocity sensor space for accommodating and sealing the vibrator of the angular velocity sensor and an acceleration sensor space for accommodating and sealing the movable member of the acceleration sensor which is not communicated with the angular velocity sensor space such that the angular velocity sensor space is sealed in a first environment and wherein the acceleration sensor space is sealed in a second different environment. Furthermore, the angular velocity sensor and the acceleration sensor have constant potential sites so that the sensors are maintained at set constant potentials, respectively wherein the constant potential site of the angular velocity sensor being electrically connected to the constant potential site of the acceleration sensor to an external circuit. (See, Abstract and as observed in the figures).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over either U.S. Patent 5,996,409 (Funk et al.) or JP 10-239064 (Saito) in view of JP 8-032090 (Masahiro et al.).

With regards to claims 3-6, the references, Funk et al. and Saito, do not disclose the features as claimed in these claims. Masahiro et al. discloses an inertia force sensor such that the resistance force received by the mass body of the acceleration sensor is adjusted and the frequency characteristics of the acceleration sensor are randomly adjusted by varying the gas pressure inside the package and enclosing a viscous liquid. As described in section [0107], it is indicated that it is necessary to suppress damping as much as possible in the angular velocity sensor and that hollow parts around the mass bodies should preferably be in a vacuum or near vacuum state. It would have been obvious to a person of ordinary skill in the art at the time of invention to have readily recognize the advantages and desirability of enclosing a gas or viscous liquid in the acceleration sensor space and putting the hollow parts around the mass bodies of the angular velocity sensor into a vacuum state as suggested in Masahiro et al. to the apparatus of either Funk et al. or Saito to adjust the frequency characteristics of the acceleration sensor and to suppress damping in the angular velocity sensor. Furthermore, it is well known in the art that vibrating angular velocity sensors are sealed in a vacuum to avoid the negative effects of air damping and that acceleration sensors are sealed in atmospheric pressure environments or with a damping agent to reduce sensitivity to external noise. At the same time, when two types of sensors are to be integrated onto one common substrate, the sensors will have to be sealed in different

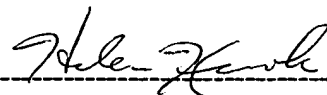
environments to benefit from the effect that the acceleration sensor can be prevented from vibrating at high frequency due to the high frequency vibration of the vibrator of the angular velocity sensor.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen C. Kwok whose telephone number is (571) 272-2197. The examiner can normally be reached on 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Helen C. Kwok
Art Unit 2856

May 12, 2005